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Space Shuttle

The problem with the tiles Page 27

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Chemical & Engineering NEWS

Cover: Space shuttle *Columbia* is lowered to apron at Kennedy Space Center's shuttle landing facility by device used to mount and remove shuttle orbiters from NASA's 747 carrier aircraft

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- ***High-pressure tests*** *duplicate the extreme pressures in Earth's interior to study how mantle, core layers formed.* ***Page 5***
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Profit margins rebound in first quarter

A 31% earnings increase and a 21% sales jump combined to drive up first-quarter profit margin to 7.2% for U.S. basic chemical firms

William F. Fallwell
and William J. Storck
C&EN, New York

Good fortune continued for chemical companies, oil firms, and other U.S. chemical producers in the first quarter of 1980. For the sixth quarter in a row, the average earnings gain for 39 of C&EN's list of 40 chemical companies topped 25%. For five of these past six quarters, including the most recent one, average earnings rose 30% or more.

The average gain in sales for 39 companies reporting results by press time was 21%. This is the fifth straight quarter in which sales increased 20% or more from the year-earlier quarter.

Most of the sales increase for the first quarter can be attributed to price increases. According to the Department of Commerce's Producer Price Index, prices for chemicals and allied products increased 19.9% in the first quarter from first-quarter 1979. Thus, little of the chemical firms' sales increase was in output gains.

Production of chemicals and allied products for the first quarter was 4.6% ahead of last year, according to the Federal Reserve Board. For the more narrow basic chemical category, production increased only 2%.

However, one problem has apparently moderated, at least for this quarter. The cost-price squeeze, so much on producers' minds in the fourth quarter, apparently lessened somewhat, since the profits gain so far outstripped the sales increase during the first three months of 1980.

Nevertheless, many of the larger chemical companies still were not able to pass through cost increases entirely in proportionate product price increases. Edward G. Jefferson, president of industry sales leader Du Pont, says, "It has not been feasible to increase selling prices sufficiently to offset the very sharp rise in costs of energy, petrochemical raw materials, and precious metals." Thus, Du Pont's profit margin slipped to 6.9% for the first quarter, compared to 8.4% for first-quarter 1979. According to Jefferson, the cost of petrochemical raw materials was up 66% compared with the first quarter last year.

A similar case prevails at the second largest chemical company, Dow Chemical. Dow financial vice president G. J. Williams says the price increases on the company's products during the quarter "were significant as we attempted to offset the continuing escalation of the cost of hydrocarbons and energy." Williams adds, "Despite these increases, costs rose faster than our prices, and our profit margin slipped as a result." Dow has little to complain about, though. Its first-quarter profit margin of 8.2% is still well ahead of the industry average of 7.2%, and the slippage is slight from the 8.5% profit margin Dow achieved in first-quarter 1979. PPG Industries chairman L. Stanton Williams says, "In general, high inflation is producing rapid rises in our costs, making it difficult to maintain profit margins." However, PPG did keep its profit margin at 6.9%, as it was a year ago.

More typical, however, were other companies that stayed ahead of the cost squeeze. For example, Union Carbide's profit margin rose to 8.5% from 7.1% in first-quarter 1979, Diamond Shamrock's increased to 7.5% from 5.8%, and International Minerals' jumped to 10.2% from 8.7%.

Business outside the U.S. continued to help earnings for many of the chemical companies in the first

Earnings coverage again expanded

C&EN continues to expand the coverage of chemical industry performance. For the first time, this quarterly wrapup of chemical company earnings includes a 12-month running profit margin. This is after-tax earnings as a percentage of sales for the 12 months ending in the current quarter. Now readers not only can compare profitability for the current quarter with that for the comparable year-earlier quarter but compare the current quarter with the average for the past year and compare the year just ending with that preceding it.

In addition, for the first time, extraordinary items and nonrecurring items for each company are included in footnotes. Previously, these items also had been excluded from the earnings tabulations, but were not cited elsewhere.

Finally, C&EN has broadened its definition of a basic chemical company to reflect the chemical industry more completely. A company must now have 40% or more of its total sales in chemicals, and these chemical sales must be larger than any other division sales.

Chemical industry leaders for first-quarter 1980

	Sales		Earnings		Profitability	
Rank		$ Millions		$ Millions[a]	Earnings as % of sales	
1	Du Pont	$3567.9	Du Pont	$244.4	Texasgulf	26.3%
2	Dow Chemical	2809.5	Dow Chemical	230.5	Freeport Minerals	22.6
3	Union Carbide	2565.6	Union Carbide	219.9	International Flavors	14.9
4	Monsanto	1822.5	Monsanto	164.2	Beker Insustries	14.5
5	Allied Chemical	1384.2	Texasgulf	73.6	Big Three Indsustries	13.3
6	W. R. Grace	1362.0	Stauffer Chemical	69.6	Lubrizol	13.0
7	Celanese	847.0	Allied Chemical	68.3	Loctite	12.4
8	American Cyanamid	830.0	Diamond Shamrock	56.3	Stauffer Chemical	11.9
9	PPG Industries	797.4	PPG Industries	54.7	Nalco Chemical	11.0
10	B. F. Goodrich	767.5	W. R. Grace	48.0	First Mississippi	10.7

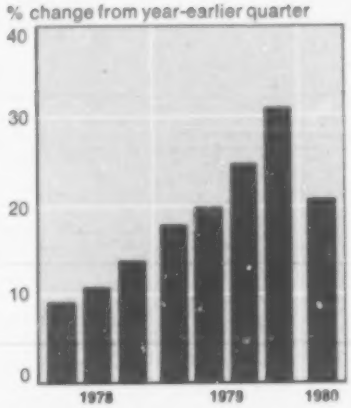
a After taxes. **Note:** For 40 chemical companies listed on page 12.

Chemical Industry First-Quarter Results

- Sales gains slowed
- Earnings were up 31%
- Profit margins recovered
- Production increased 4.6%
- Prices climbed 20%

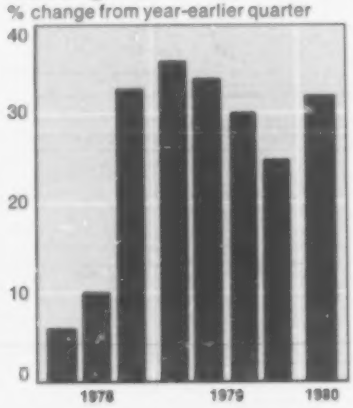
Sales

% change from year-earlier quarter



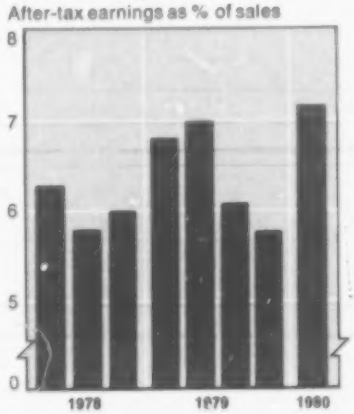
Earnings

% change from year-earlier quarter



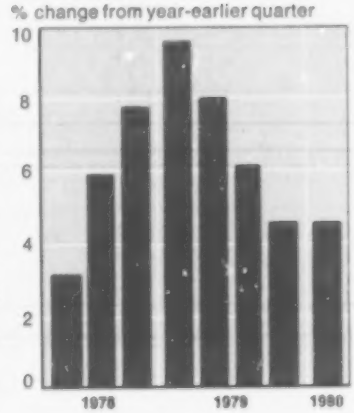
Profit margins

After-tax earnings as % of sales



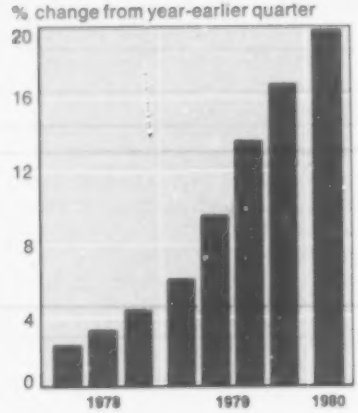
Production

% change from year-earlier quarter



Prices

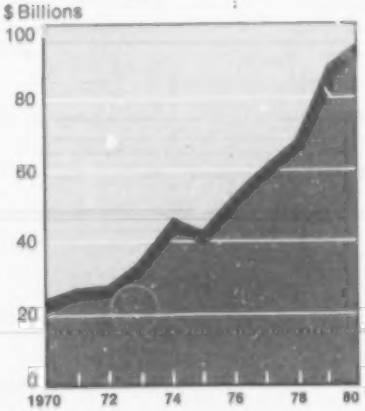
% change from year-earlier quarter



For full year, sales likely will rise 10% to top $97 billion, but recession probably will flatten earnings at $5.7 billion and profit margins will fall to about 5.9%

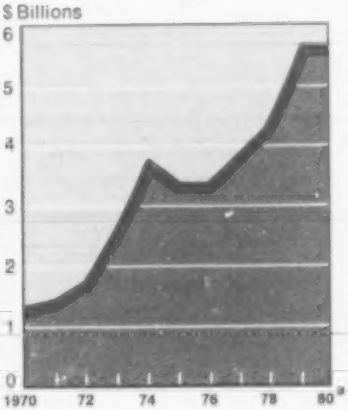
Annual sales

$ Billions



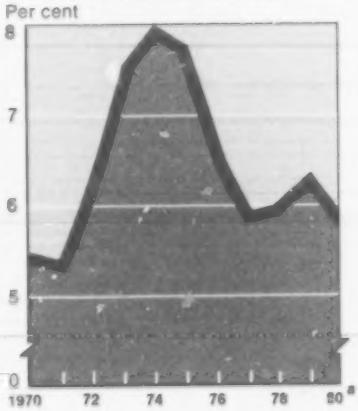
Annual earnings

$ Billions



Annual profit margins

Per cent



a C&EN estimates. **Note:** All sales, earnings, and profit margin data are based on the combined performance of the 40 largest chemical makers listed on page 12.

First-quarter earnings rose 32%, bringing profit margins up to 7.2%

	FIRST-QUARTER 1980						12-Month profit margin[b]		Earnings per share[c]	
	Sales ($ millions)	Earnings ($ millions)	Change from 1979 Sales	Change from 1979 Earnings	Profit margin[a] 1980	Profit margin[a] 1979	1980	1979	1st qtr	Recent 12 months
Du Pont	$3,567.9	$244.4	18%	−2%	6.9%	8.2%	7.1%	7.8%	$1.66	$6.52
Dow Chemical	2,809.5	230.5	35	31	8.2	8.5	8.4	8.5	1.27	4.35
Union Carbide[e]	2,565.6	219.9	19	44	8.5	7.1	—	—	3.32	11.00
Monsanto	1,822.5	164.2	12	1	9.0	10.0	6.4	6.1	4.49	10.08
Allied Chemical	1,384.2	68.3	64	85	4.9	4.3	4.2	4.8	2.06	6.55
W. R. Grace[f]	1,362.0	48.0	17	26	3.5	4.9	4.5	3.9	1.01	4.88
Celanese	847.0	36.0	14	13	4.3	4.3	4.5	4.5	2.39	9.67
American Cyanamid	830.0	38.0	10	−7	4.6	5.4	5.1	5.6	0.79	3.39
PPG Industries	797.4	54.7	10	10	6.9	6.9	7.1	6.8	1.67	6.89
B. F. Goodrich	767.5	20.3	7	−23	2.6	3.7	2.4	3.0	1.20	4.21
Diamond Shamrock	755.3	56.3	50	91	7.5	5.8	7.9	7.8	1.06	3.87
Hercules	646.0	33.7	16	−7	5.2	6.5	5.8	6.1	0.76	3.20
Stauffer	582.9	69.6	17	12	11.9	12.5	8.9	9.7	1.59	3.19
National Distillers	558.5	43.1	2	35	7.7	5.8	6.9	6.0	1.27	3.84
Williams Cos.	479.3	35.1	14	374	7.3	1.8	5.1	2.4	1.29	3.57
Olin	475.2	22.1	9	26	4.7	4.0	4.2	4.6	0.92	3.21
International Minerals[g]	459.5	47.0	23	44	10.2	8.7	8.7	8.1	2.16	6.11
Ethyl Corp.[h]	438.6	21.2	18	—	4.9	5.7	5.7	6.1	1.03	4.77
Rohm & Haas[i]	435.7	27.1	13	11	6.2	6.4	6.0	5.1	2.10	7.59
Cabot	433.8	32.3	58	80	7.4	6.5	6.9	6.5	3.09	9.27
Air Products	378.0	34.2	26	40	9.1	8.2	8.3	7.6	1.21	3.97
Pennwalt	302.8	12.3	17	23	4.1	3.9	4.7	4.6	1.20	5.21
Akzona	293.2	5.3	13	−43	1.8	3.6	2.7	2.5	0.43	1.66
Witco Chemical	285.6	10.5	29	12	3.7	4.2	4.3	4.5	1.08	4.56
Texasgulf	280.0	73.6	61	191	26.3	14.5	20.7	10.0	1.97	4.82
Reichhold Chemicals	236.3	4.2	16	62	1.8	1.3	1.5	1.8	0.50	1.57
Lubrizol	223.2	29.0	39	65	13.0	10.9	12.7	12.7	1.49	5.25
Ferro	169.5	7.0	24	1	4.1	5.1	5.0	5.5	0.92	4.08
Nalco Chemical	147.4	16.2	8	6	11.0	11.2	10.9	11.4	0.81	3.03
Freeport Minerals	156.4	35.3	48	75	22.6	19.2	21.6	13.1	1.12	4.89
Thiokol	155.0	9.9	14	22	6.4	6.0	7.3	5.5	1.71	6.57
Big Three Industries	152.9	20.4	26	38	13.3	12.2	12.6	12.9	1.01	3.40
Liquid Air[j]	—	—	—	—	—	6.4	—	5.9	—	—
International Flavors	121.8	18.2	20	17	14.9	15.3	14.9	15.4	0.50	1.75
Mallinckrodt	112.0	9.0	14	16	8.0	7.9	8.2	7.7	0.92	3.47
Baker Industries[k]	74.5	10.8	52	1250	14.5	1.6	9.1	1	0.93	1.98
Crompton & Knowles	61.8	2.1	3	1	3.5	3.5	3.3	2.8	0.90	3.42
Petrolite	59.5	5.1	39	34	8.6	8.9	8.3	9.2	0.87	2.87
Loctite	50.7	6.3	24	7	12.4	14.2	13.6	14.9	0.64	2.59
First Mississippi	42.1	4.5	17	124	10.7	5.5	13.7	11.7	0.52	2.01
Total 20 largest companies[m]	**$22,018.4**	**$1511.6**	**21.0%**	**22.5%**	**6.9%**	**6.8%**	**6.3%**	**6.3%**		
Total 19 other companies[m]	**$3,303.2**	**$313.9**	**22.0%**	**61.5%**	**9.5%**	**7.0%**	**8.5%**	**6.7%**		
GRAND TOTAL[m]	**$25,321.6**	**$1825.7**	**21.1%**	**31.7%**	**7.2%**	**6.8%**	**6.6%**	**6.4%**		

a After-tax income as percentage of sales. b After-tax income as percentage of sales for 12 months ending first-quarter 1980 and 1979. c Fully diluted before nonrecurring items and extraordinary charges for continuing operations. d As of April 30. e Union Carbide had a $217.3 million gain for accounting changes during the first quarter. Since previous quarters were not restated, 12-month profit margins are not comparable. 12-Month earnings per share for Union Carbide are approximate. f Excludes an additional net gain of $17.1 million from divestments. g Excludes $7.9 million loss on disposal of certain chemical businesses. h Excludes $7.3 million gain on disposal of land. i Excludes

quarter. For instance, Diamond Shamrock chairman W. H. Bricker says exports continued to provide support for plastics, industrial chemicals, and agri chemicals.

Similarly, Dow's largest regional sales increase was a 50% gain in Europe. Union Carbide's total international sales increased 20%, and exports gained 23% compared to the first quarter last year.

Du Pont's Jefferson says the company's international business continued to post strong sales growth with gains in all geographic areas. The company's total sales outside the U.S. were $1.2 billion in the first quarter, 28% more than in the same period last year.

Almost to a company, however, chemical firms are concerned about the remainder of 1980. PPG's Williams says, "Auto [output] and housing starts were off substantially for the quarter and we see other signs of the early stages of a recession."

Kenneth E. Davis, the new president and chief operating officer at Stauffer Chemical, says some expected market downturn could prevent a strong performance for the company in the second and third quarters. However, he adds that the

STOCK MARKET DATA

Stock price[d]			Price-earnings ratio	Annual indicated dividend	Dividend yield, % of price
	Recent 12 months				
April 30	High	Low	April 30		
36 1/2	45 7/8	31 1/8	6	$2.00	5.5%
32 1/2	39 1/4	24 3/4	7	1.60	4.9
38 1/4	47 7/8	35 1/4	4	3.00	7.8
46 1/4	62 3/4	42 1/4	5	3.60	7.8
47 1/4	61 3/8	30 1/4	7	2.20	4.7
34 1/8	44 1/2	27	7	2.05	6.0
45	50	39 3/4	5	3.60	8.0
26	38	20 5/8	8	1.60	6.2
29 3/8	34 1/4	26 1/8	4	2.16	7.4
18 5/8	24	16 3/8	4	1.56	8.4
28 1/4	36 3/4	20 1/4	7	1.60	5.7
17 1/2	24 5/8	15 1/8	5	1.20	6.9
16 3/4	25	14 1/2	5	1.20	7.2
26 1/2	32 1/2	20 3/4	6	2.00	7.5
31	40 1/2	17 1/4	9	1.10	3.5
16	25	12 1/2	5	1.00	6.3
34 3/8	34 3/8	33 1/4	6	2.32	6.7
25	30 1/2	22 1/4	5	1.50	6.0
37 1/8	48 1/2	32 3/4	5	2.00	5.4
60 5/8	68 5/8	34 5/8	7	2.00	3.3
38	43 1/8	26 1/2	10	0.80	2.1
26 1/4	35 7/8	25 3/8	5	2.20	8.4
9 7/8	17 1/2	7 3/4	6	0.80	8.1
22 1/4	33	20 1/4	5	1.40	6.3
35 7/8	53 5/8	21 1/8	7	1.60	4.5
11 1/8	16 1/2	9 5/8	7	0.74	6.7
58 3/8	64 1/2	42 1/2	11	1.80	3.1
20 1/8	26	17	5	1.20	6.0
32	35 5/8	27 3/4	10	1.60	5.0
36 1/2	49 3/4	31 1/2	10	1.00	2.7
49 1/4	58	33 1/2	7	1.55	3.1
46	47 3/4	34 3/4	15	0.88	1.9
20 1/4	28 3/4	20	8	1.40	6.9
19 1/4	23	16 5/8	11	0.80	4.2
30 1/4	33 1/4	25 1/4	9	1.20	4.0
11 5/8	16	6	5	—	—
20	22 1/4	14	6	1.20	6.0
44 1/2	52 1/2	35 1/4	16	1.24	2.8
28 1/2	45	25 1/2	11	0.56	2.0
29 1/4	37 3/4	12 1/2	14	0.50	1.7

$3.7 million gain in first-quarter 1979 on income tax loss carry-forwards. j Not all data available by press time. k Excludes $19 million gain in first-quarter 1979 on sale of 50% interest in certain assets. l Deficit. m Averages except for sales and earnings.

fourth quarter probably will be good because of international sales of agricultural products and improved performance of plastics operations. Stauffer chairman H. Barclay Morley says the company's earnings will be flat or slightly up for the year unless the economy goes into a severe recession in the second and third quarters.

The weakening of the economy is already being felt by companies with large sales to the automotive and home-building industries. As is traditional, fibers seem to be the first and worst hit. At Celanese, income from fibers dropped 37% to 61 cents a share in the first quarter from 97 cents a share in the first quarter last year. This decline was in polyester and nylon manufactured in the U.S., which lost 11 cents a share in the first

Ground rules for the C&EN earnings analysis

C&EN's quarterly report on financial performance of the U.S. chemical industry contains data from the 40 largest U.S. basic chemical companies and from 50 diversified companies, each with more than $200 million in annual chemical sales.

The 40 largest chemical firms included in the table on this page produce 50 to 60% of chemicals sold in the U.S. The table of nonchemical firms on pages 14 and 15 is divided into two groups. The first includes 20 oil and gas companies specializing in basic petrochemicals. The second is major diversified firms with large chemical operations. In both cases, chemical sales are more than $200 million annually.

Also included is a state-of-the-industry page. These graphs give quarterly comparisons for the past two years on five specific measures for the 40 largest chemical firms, plus annual data for the past decade for the same group.

In referring to chemical sales, C&EN means those chemicals whose molecular composition has been changed in the course of manufacture. Hence, chemical sales include those of traditional categories of basic petrochemicals and inorganics; organic intermediates and inorganic compounds; polymers such as plastics and fibers; agricultural chemicals; and specialty derivatives. The list does not include companies whose primary business is formulating or fabricating products made from purchased process chemicals. By the government's Standard Industrial Classification code, the survey's chemicals would fall into SIC categories 281, 282, 286, 287, and, in part, 289.

In listing earnings the survey gives after-tax income for continuing operations before nonrecurring items and extraordinary charges. Foreign currency translations are included. Earnings per share are given with full dilution for convertible issues of securities. For companies with fiscal years different from the calendar year, data are given for the most recent quarter.

In other definitions, profit margin is after-tax earnings as a percentage of net sales. The 12-month indicated dividend is the company's latest announced quarterly dividend multiplied by four with year-enders. Price/earnings multiples are for trailing 12-month earnings per share.

Twelve-month earnings per share are for the year ending with the latest quarter. Yield is the indicated annual dividend as a percentage of latest stock price. Shares outstanding are companies' figures, generally averages for latest quarter.

Earnings and profit margins also jump for oil and other diversified chemical producers

	Chemical sales as % of total sales	FIRST-QUARTER 1980						STOCK MARKET DATA			
		Total sales ($ millions)	Earnings ($ millions)	Change from 1979 Sales	Change from 1979 Earnings	Profit margin[a] 1980	Profit margin[a] 1979	Earnings per share 1st qtr	Earnings per share Recent 12 months	Stock price April 30	Stock price 12-Month high
OIL AND GAS COMPANIES											
Exxon	8%	$27,649.0	$1,925.0	47%	102%	7.0%	5.1%	$4.40	$11.98	60¾	67¾
Mobil[b]	3	15,276.0	922.0	47	105	6.0	4.3	4.34	11.70	72¾	89½
Texaco[b]	3	13,249.0	600.6	59	98	4.5	3.6	2.21	7.58	35⅜	41⅝
Standard Oil of California	3	10,447.0	627.0	50	83	6.0	4.9	3.67	12.10	70¾	85
Gulf Oil	9	7,756.0	389.0	39	56	5.0	4.5	1.99	7.49	40⅛	54½
Standard Oil (Ind.)	11	6,452.0	576.0	47	65	8.9	8.1	3.91	11.75	102⅛	121¼
Atlantic Richfield	10	5,433.8	426.1	55	76	7.8	6.9	3.45	9.81	91¾	106
Shell Oil	18	4,798.0	373.0	56	67	7.8	7.3	2.42	8.27	67⅝	76
Conoco	6	4,300.0	328.6	54	103	7.6	5.8	3.05	9.13	47⅛	58⅝
Phillips Petroleum	20	3,380.0	338.6	70	91	10.0	8.9	2.20	6.82	42⅝	61⅛
Occidental Petroleum	18	3,346.6	277.9	82	226	8.3	4.5	3.37	9.07	23⅝	31⅞
Tenneco	13	3,316.0	178.0	36	45	5.4	5.0	1.61	5.66	34⅝	45½
Sun Co.	3	3,100.0	251.3	29	96	8.1	5.4	3.99	13.09	69	88⅜
Standard Oil (Ohio)	5	2,500.0	450.7	47	169	18.0	15.7	3.67	12.11	93	110½
Union Oil	11	2,380.0	152.9	35	34	6.4	6.5	1.76	6.22	50⅜	62½
Cities Service	9	2,172.0	170.1	50	117	7.8	5.4	6.13	15.84	93⅞	112½
Ashland Oil[b]	16	2,000.0	47.4	33	55	2.4	2.0	1.59	6.47	33	45½
El Paso	11	1,028.4	34.7	84	11	3.4	5.6	0.74	3.04	17⅝	30½
Kerr-McGee	16	780.4	47.1	30	41	6.0	5.6	1.82	6.71	68¼	78⅝
American Petrofina	19	523.4	31.4	51	176	6.0	3.3	2.92	9.63	38½	48¼
DIVERSIFIED MANUFACTURERS											
Engelhard Minerals	1	5,934.6	141.4	110	198	2.4	1.7	2.05	6.43	28¾	38¾
General Electric	2	5,880.0	341.5	16	13	5.8	6.0	1.50	6.37	47½	57½
U.S. Steel[b]	9	3,200.0	101.2	3	116	3.2	1.5	1.16	[c]	19	24½
Procter & Gamble	4	2,790.0	189.2	14	12	6.8	6.9	2.29	8.16	71½	80¾
Eastman Kodak	20	2,137.1	215.9	30	9	10.1	12.0	1.34	6.32	52⅝	63½
Goodyear Tire	6	2,023.4	50.7	1	−6	2.5	2.7	0.70	1.98	12	17¾
Esmark	8	1,652.7	21.4	7	24	1.3	1.1	0.93	4.52	25⅞	35½
3M	15	1,494.0	167.3	14	10	11.2	11.7	1.43	5.72	52¾	58¼
Aluminum Co. of America	5	1,303.0	143.5	8	12	11.0	10.6	4.05	14.42	55	70⅞
Georgia-Pacific	10	1,225.0	50.0	11	−35	4.1	7.0	0.47	2.81	25	34⅞
Firestone Tire	13	1,177.2	−13.8	−2	[c]	[c]	2.9	−0.24	0.94	6⅝	13½
Borden[d]	34	1,070.1	30.7	12	6	3.5	3.0	0.94	4.16	22⅛	27⅝
FMC	34	873.4	40.8	13	5	4.7	5.1	1.22	4.23	22¾	31⅛
Kaiser Aluminum	14	750.1	73.5	6	31	9.8	8.0	1.67	5.67	19	25⅝
Pfizer	15	710.1	65.4	11	12	9.2	9.1	0.89	3.35	38⅝	41¾
Eli Lilly	21	704.3	115.3	15	12	16.4	16.8	1.58	4.69	50⅜	63⅞
Borg-Warner	22	680.1	35.9	8	2	5.2	5.6	1.68	7.28	33¼	42⅞
Northwest Industries	9	657.3	30.5	12	−11	4.6	5.8	0.98	5.48	27¾	37⅞
Merck	16	655.0	106.0	16	17	16.2	16.1	1.41	5.27	67⅞	75⅝
Uniroyal	17	580.2	−12.1	−19	[c]	[c]	0.8	−0.45	−5.22	3⅛	7
Martin Marietta	12	567.1	34.5	30	5	6.1	7.5	1.39	7.20	43⅛	57¼
General Tire[b]	10	513.3	−11.3	−1	[c]	[c]	2.7	−0.48	2.38	15½	26⅞
NL Industries	30	505.6	36.5	21	75	7.2	5.0	1.07	3.63	40⅜	44⅛
SCM	13	468.0	10.5	6	14	2.3	2.1	1.02	4.94	24¾	32
Koppers	33	402.9	0.3	16	−92	0.1	1.2	0.00	3.12	22⅝	31¾

a After-tax income as percentage of sales. b Excludes major nonrecurring earnings: Mobil—$459 million in 1980; Texaco—$402 million in 1980; Ashland Oil—$3.4 million loss in 1979; U.S. Steel—$14.8 million gain in 1980 and $90.4 million gain in 1979; General Tire—$1.5 million charge in 1979. c Deficit. d Earnings include nonrecurring items.

STOCK MARKET DATA

Stock price 12-Month low	Price-earnings ratio April 30	Annual indicated dividend April 30	Dividend yield, % of price
49 1/8	5	$5.20	8.6%
36 1/4	6	3.40	4.7
36 3/4	5	2.40	6.8
44 3/4	6	3.20	4.5
25 1/8	5	2.25	5.6
60	9	3.60	3.5
60 7/8	9	3.40	3.7
37 1/4	8	2.80	4.1
31	5	2.20	4.7
34	6	1.80	4.2
18	3	.50	6.3
30 5/8	6	2.40	6.9
49 3/4	5	3.60	5.2
47 5/8	8	2.80	3.0
33	8	1.30	2.6
59 1/8	6	4.80	5.1
25 3/4	5	2.20	6.7
15 3/4	6	1.48	8.4
46	10	1.80	2.6
28 3/4	4	2.80	7.3
20 1/8	4	0.96	3.3
44	7	2.80	5.9
16 1/4	c	1.60	8.4
62 1/4	9	3.40	4.8
42 7/8	8	2.40	4.6
10 3/4	6	1.30	10.8
23 3/4	6	1.84	7.1
46 1/4	9	2.80	5.3
48 3/8	4	3.20	5.8
21 1/2	9	1.20	4.8
6 1/8	7	0.60	9.1
19 5/8	5	1.90	8.6
21 5/8	5	1.40	6.2
15 3/8	3	1.20	6.3
29	11	1.44	3.7
45 3/4	11	2.10	4.2
29	5	2.30	6.9
24 3/4	5	2.05	7.4
58 1/4	13	2.30	3.4
3 1/8	c	0	0
32 1/8	6	2.12	4.9
12 1/4	7	1.50	9.7
21	11	1.20	3.0
16 5/8	5	1.30	5.3
19	7	1.40	6.2

quarter. In the same period in 1979, these fibers contributed 32 cents a share to the company's earnings.

Monsanto's operating loss from textiles in the first quarter was $29.7 million, compared to a $5.4 million loss in operating income for the same quarter last year.

And at Du Pont, earnings from fibers in the first quarter declined 27% to 37 cents a share from the year-earlier quarter.

As in the past few quarters, the best performers are fertilizer-based companies. Texasgulf, which leads all 38 of the companies in profitability with a profit margin of 26.3%, had an earnings increase of 191% for the quarter. Company chairman Charles F. Fogarty says: "The outlook for Texasgulf is better than at any previous time in the company's history. Most facilities are operating at or near capacity, and demand for our products is good. We are selling all that we can produce."

Perhaps the most dramatic improvement has been at Beker Industries, which many industry analysts had all but written off as a near-bankrupt operation just a year and a half ago. Beker, with an infusion of capital from the sale of 50% of its phosphate ore reserves in Idaho last year, has moved steadily upward. The swing has been so dramatic that this quarter Beker had the fourth highest profit margin of all top 40 companies at 14.5%, compared to only 1.6% for the first quarter a year ago.

Other companies profiting from fertilizer include First Mississippi, Freeport Minerals, International Minerals, and, to some extent, W. R. Grace and PPG.

Agricultural chemical gains also were important in the first quarter for a number of nonbasic-chemical companies. However, like many other chemical operations within these diversified companies, the first quarter began to show some extremes of performance.

Borden chairman Eugene J. Sullivan put his finger on the best chemical operations for a number of companies in his observation that petrochemical and agricultural operations "contributed materially" to an improvement in operating income by the company's chemical division.

Even so, not all agricultural operations did this well, particularly in specialties. Whereas Eli Lilly reports another quarter of sales growth for its all-important Treflan herbicide, FMC reports that lower than anticipated sales of proprietary pesticides helped bring about an earnings decrease for the company's agricultural machinery and chemicals segment. And Kaiser Aluminum & Chemical, between these extremes, reports that earnings from its agricultural chemicals were about the same as a year ago.

If agricultural chemicals showed a somewhat mixed performance, petrochemicals were good to almost all producers. These were the preferred area to be in this winter: They proved a bonanza. For the petrochemical industry leader, Exxon, the first quarter brought an 80% year-to-year petrochemical earnings gain to $162 million on a revenue jump of 62% to $2.22 billion.

Other petrochemical earnings gains at major producers included 64% at Shell Oil, 74% at Texaco, 82% at Gulf Oil, and 343% at Standard Oil (Ind.).

At Standard Oil (Ind.), chairman of chemical operations John E. Swearingen says, "Generally firm market conditions enabled the company to maintain margins despite sharply higher raw material and operating costs." Gulf Oil comments that strong demand for benzene derivatives and the resulting significant price improvements for petrochemicals in 1979 carried over into the first quarter of 1980. Plastics operations also posted higher profits at Gulf.

Profitability improvement also was the story for oil companies' overall results. At 18 of the 20 largest chemical-producing oil companies in C&EN's earnings survey, overall profit margins on sales improved in first-quarter 1980 from first-quarter 1979.

Unfortunately, this was not generally the case for the other diversified chemical producers. Although in some cases chemicals outperformed other product lines, notably in the rubber industry, overall profit margins improved for only 10 of the 25 companies in this group in C&EN's survey. Some highly profitable companies found their margins nicked this time, including Eastman Kodak, 3M, and Eli Lilly.

As many of these checkered results show—such as deficits at Firestone, General Tire, and Uniroyal—1980 is beginning to look like a rough year for many companies. With the recession looming very large, it's safe to say that earnings will not hold the gains they have seen in the past year.

In fact, although earnings may increase somewhat in the second quarter, they may lose enough ground in the third and fourth quarters to flatten income for the year to the $5.7 billion figure for 1979. Sales for the year may well increase about 10% to more than $97 billion. As a result, profit margins would fall to an average 5.9% for the full year, from 6.4% in 1979. □

Canadian chemicals register good quarter

Four largest firms all posted sales, earnings increases in first quarter; but strong recovery that began in 1979 seems to be losing momentum

According to the figures, Canada's four largest publicly reporting chemical companies—C-I-L (formerly Canadian Industries Ltd.), Celanese Canada, Du Pont Canada, and Union Carbide Canada—all had at least a pretty good first quarter.

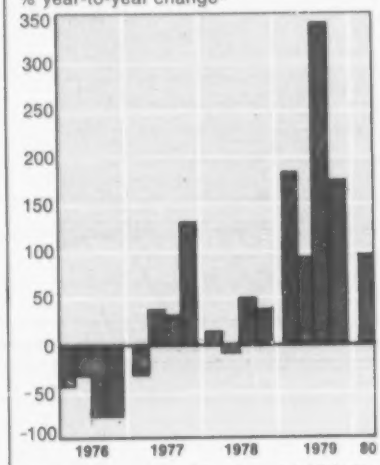
But the figures don't tell all. There are signs that the strong recovery that began early in 1979 is starting to lose momentum. There is also growing concern that increases, both actual and anticipated, in Canadian oil prices will end the Canadian producers' current advantage in world petrochemical markets.

Combined first-quarter sales for the four companies amounted to $765 million (Canadian), 22% higher than in the first quarter of 1979. Total earnings reached $50.5 million, a 94% increase from the year-earlier period. However, much of that increase stemmed from C-I-L and Carbide, which were comparing this year's first quarter with a downright dreadful first quarter in 1979. Overall, profit margins averaged 6.6%, up about 61% from last year's first quarter.

C-I-L posted first-quarter sales of $228 million, a modest 16% increase from the year-earlier period. However, earnings rebounded to $9.5 million, a 144% improvement over the first quarter of 1979. Then, C-I-L was suffering the effects of a lengthy strike at International Nickel, which is not only an important customer but also an important supplier of sulfur for C-I-L's sulfuric acid plants. C-I-L was in the costly predicament of having to buy sulfuric acid from others to meet its own delivery obligations.

C-I-L president W. J. Mandry attributes much of the earnings improvement to "more realistic prices for agricultural chemicals, explosives, and plastics." He notes that strengthening of major C-I-L markets, including agriculture, mining, and pulp and paper, which began in 1979, persisted in the first quarter of 1980. Indications are, he adds, that this trend will continue.

First-quarter earnings show a 94% gain



a After-tax earnings of four largest publicly reporting Canadian chemical operations—Celanese Canada, C-I-L, Du Pont Canada, and Union Carbide Canada.

At Celanese Canada, first-quarter sales amounted to $99.2 million, also a 16% increase from the 1979 period. Net income also was up but, at $5.2 million, it represented only a 6% improvement over the first quarter of 1979. Income from chemicals and industrial products rose significantly, according to Celanese president Richard M. Clarke. But overall results were affected by slackening in the textile-related economy. Although that weakness likely will continue for four to six months, "export opportunities" will help the firm maintain a balanced financial position, Clarke says.

Du Pont Canada had total first-quarter sales of $235 million, up 21% from the year-earlier period. Net income for the quarter came to $12.7 million, a 46% increase. The improvement reflects higher selling prices for most products and strong demand for nylon tire yarn, polyethylene pipe, finishes, and consumer products, says Du Pont president J. E. Newall.

However, Newall warns, "Slower business activity is evident in the automotive, furniture, carpet, apparel, and residential construction markets, and is being reflected in reduced demand for a number of our products." Consequently, he says, it's unlikely that Du Pont's 1980 earnings will match the record level reached in 1979.

Union Carbide Canada's sales came to $203 million in the first quarter, a 33% increase from the like period in 1979. But earnings soared 174%, to $23.1 million. Some of the earnings increase was due to changes in accounting policies; nevertheless, it was a good quarter.

"Plastics and chemicals continued to achieve exceptionally good results," says Carbide president J. S. Dewar, adding that gases, metals, and carbon products also had a strong quarter. However, Dewar doesn't expect first-quarter momentum to continue through the year. Product prices will stabilize, but costs will continue to rise, so that sales and earnings gains will moderate as the year goes on. Just the same, Dewar says, Carbide's 1980 results probably will exceed 1979's.

Ward Worthy, Chicago

Carbide is the most profitable of the four

$ Millions (Canadian)	First-quarter 1980 Net sales	Change from 1979	Net income	Change from 1979	Profit margin[a] 1980	1979
C-I-L	$227.7	16%	$9.5	144%	4.2%	2.0%
Celanese Canada	99.2	16	5.2	6	5.3	5.6
Du Pont Canada	234.8	21	12.7	46	5.4	4.6
Union Carbide Canada	202.8	33	23.1	174	11.4	5.5
TOTAL	**$764.5**	**22%**	**$50.5**	**94%**	**6.6%**	**4.1%**

a Net income as percentage of sales.